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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/052,699	01/17/2002	Marco Paniconi	80398.P496	1374

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EXAMINER

RAO, ANAND SHASHIKANT

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 04/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/052,699

Applicant(s)

PANICONI ET AL.

Examiner

Andy S. Rao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's arguments with respect to claims 1-21 as filed on 11/22/04 have been considered but are moot in view of the new ground(s) of rejection based on newly cited material of the previously applied reference.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

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3. Claims 1-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Sethuraman et al., (hereinafter referred to as "Sethuraman").

Sethuraman discloses a method (Sethuraman: figures 3-5) comprising: identifying a plurality of motion classes (Sethuraman: column 11, lines 1-20) for a frame of video data (Sethuraman: column 3, lines 45-67; column 4, lines 1-10), each motion class having at least one region classified thereto (Sethuraman: column 8, lines 45-55), wherein a region is poorly classified if as classified as belonging to an improper class (Sethuraman: column 6, lines 50-55; column 8, lines 35-40: "too small to track" belong to an improper class); determining a region to be a poorly classified region forming a set of class hypotheses for the poorly classified region (Sethuraman: column 8, lines 55-67), the set of class hypotheses containing at least one possible motion class (Sethuraman: column 14, lines 18-21); determining a similarity measure for the poorly classified region with respect to a set of past and future video data (Sethuraman: column 14, lines 13-15), the similarity measure indicating a degree of consistency between a hypothesis for the motion of the poorly classified region and the motion of the corresponding regions in past and future frames (Sethuraman: column 8, lines 60-67); and reclassifying the poorly classified region to one of the at least one possible motion classes according to the similarity measure (Sethuraman: column 9, lines 50-67), as in claim 1.

Regarding claim 2, Sethuraman discloses the set of past and future video data comprises: at least one preceding frame of video data; and at least one succeeding frame of video data (Sethuraman: column 7, lines 5-20), as in the claim.

Regarding claims 3-5, Sethuraman discloses reclassifying according to the similarity measure includes: determining which of the at least one possible motion classes are suitable for

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the poorly classified region using the similarity measure (Sethuraman: column 14, lines 13-30), as in the claims.

Regarding claim 6, Sethuraman discloses that determining a region to be a poorly classified region comprises: measuring the distortion of a region, comparing the measured distortion of the region to a distortion threshold (Sethuraman: column 11, lines 55-67; column 12, lines 1-17); and determining the region to be poorly classified (Sethuraman: column 14, lines 13-23) if the measured prediction is greater than the prediction error threshold (Sethuraman: column 9, lines 5-21), as in the claim.

Regarding claim 7, Sethuraman discloses that determining a region to be a poorly classified region comprises: measuring the prediction error of a region, comparing the measured prediction error of the region to a prediction error threshold (Sethuraman: column 11, lines 55-67; column 12, lines 1-7); and determining the region to be poorly classified (Sethuraman: column 14, lines 13-23) if the measured prediction is greater than the prediction error threshold (Sethuraman: column 9, lines 5-21), as in the claim.

Regarding claim 8, Sethuraman discloses that the reclassification of a poorly classified region in an image comprises finding the minimum of a measure over all class hypotheses equation as specified (Sethuraman: column 14, lines 10-25), as in the claim.

Sethuraman discloses a computer-readable medium comprising computer program instructions which (Sethuraman: column 3, lines 15-20), when executed by a processor, cause the processor to perform the hypothesis algorithm (Sethuraman: column 14, lines 10-25) comprising: identifying a plurality of motion classes (Sethuraman: column 11, lines 1-20) for a frame of video data (Sethuraman: column 3, lines 45-67; column 4, lines 1-10), each motion

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class having at least one region classified thereto (Sethuraman: column 8, lines 45-55) wherein a region is poorly classified if as classified as belonging to an improper class (Sethuraman: column 6, lines 50-55; column 8, lines 35-40: “too small to track” belong to an improper class); determining a region to be a poorly classified region forming a set of class hypotheses for the poorly classified region (Sethuraman: column 8, lines 55-67), the set of class hypotheses containing at least one possible motion class (Sethuraman: column 14, lines 18-21); determining a similarity measure for the poorly classified region with respect to a set of past and future video data (Sethuraman: column 14, lines 13-15), the similarity measure indicating a degree of consistency between a hypothesis for the motion of the poorly classified region and the motion of the corresponding regions in past and future frames (Sethuraman: column 8, lines 60-67); and reclassifying the poorly classified region to one of the at least one possible motion classes according to the similarity measure (Sethuraman: column 9, lines 50-67), as in claim 9.

Regarding claim 10, Sethuraman discloses that the computer readable medium has the set of past and future video data comprises: at least one preceding frame of video data; and at least one succeeding frame of video data (Sethuraman: column 7, lines 5-20), as in the claim.

Regarding claim 11, Sethuraman discloses that the computer readable medium has determining a region to be a poorly classified region comprises: measuring the distortion of a region, comparing the measured distortion of the region to a distortion threshold (Sethuraman: column 11, lines 55-67; column 12, lines 1-17); and determining the region to be poorly classified if the measured prediction is greater than the prediction error threshold (Sethuraman: column 9, lines 5-21), as in the claim.

Regarding claim 12, Sethuraman discloses that the computer readable medium has determining a region to be a poorly classified region comprises: measuring the prediction error of a region, comparing the measured prediction error of the region to a prediction error threshold (Sethuraman: column 11, lines 55-67; column 12, lines 1-17); and determining the region to be poorly classified if the measured prediction is greater than the prediction error threshold (Sethuraman: column 9, lines 5-21), as in the claim.

Sethuraman discloses a video device (Sethuraman: figure 1) comprising: means for forming a set of class hypotheses for a region of a frame of video data (Sethuraman: column 14, lines 18-22); means for determining a similarity measure for the region with respect to a set of past and future video data (Sethuraman: column 14, lines 13-15); and means for reclassifying the region according to the similarity measure (Sethuraman: column 9, lines 50-60) if a region has been classified as belonging to an improper class (Sethuraman: column 6, lines 50-55; column 8, lines 35-40: "too small to track" belong to an improper class), as in claim 13.

Regarding claim 14, Sethuraman discloses that the device has wherein the set of past and future data comprises: at least one preceding frame of video data; and at least one succeeding frame of video data (Sethuraman: column 9, lines 50-67), as the claim.

Regarding claim 15, Sethuraman discloses that the device further comprises: means for determining a region to be poorly classified by a) measuring the distortion of a reason, b) comparing the measured distortion of the region to a distortion threshold (Sethuraman: column 11, lines 55-67; column 12, lines 1-17), and c) determining the region to be poorly classified if the measured prediction is greater than the prediction error threshold (Sethuraman: column 9, lines 5-21), as in the claim.

Regarding claim 16, Sethuraman discloses that the device further comprises: means for determining a region to be poorly classified by a) measuring the prediction error of a region, b) comparing the measured prediction error of the region to a prediction error threshold (Sethuraman: column 11, lines 55-67; column 12, lines 1-17), and c) determining the region to be poorly classified if the measured prediction is greater than the prediction error threshold (Sethuraman: column 9, lines 5-21), as in the claim.

Sethuraman discloses a video device (Sethuraman: figure 1) comprising: a motion compensation component (Sethuraman: column 3, lines 30-47) configured to form a set of class hypotheses for a region of a frame of video data (Sethuraman: column 14, lines 18-21), to determine a similarity measure (Sethuraman: column 14, lines 13-15) for the region with respect to a set of past and future data (Sethuraman: column 7, lines 5-20), and to reclassify the region according to the similarity measure (Sethuraman: column 9, lines 50-67), if a region has been classified as belonging to an improper class (Sethuraman: column 6, lines 50-55; column 8, lines 35-40: "too small to track" belong to an improper class); as in claim 17.

Regarding claim 18 Sethuraman discloses that the device has the set of past and future data comprises' at least one preceding frame of video data; and at least one succeeding frame of video data (Sethuraman: column 7, lines 5-20), as in the claim.

Regarding claim 19, Sethuraman discloses that the device has wherein the region is reclassified by finding a minimum similarity measure and assigning the region to a class having the minimum similarity measure (Sethuraman: column 14, lines 13-15), as in the claim.

Sethuraman discloses a method (Sethuraman: figures 3-5) comprising: performing motion estimation for a frame (Sethuraman: column 3, lines 30-43; column 6, lines 30-55))

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containing a plurality of motion classes, each motion class having at least one region classified thereto (Sethuraman: column 11, lines 1-15) wherein a region is poorly classified if as classified as belonging to an improper class (Sethuraman: column 6, lines 50-55; column 8, lines 35-40: “too small to track” belong to an improper class); identifying at least one poorly classified region (Sethuraman: column 8, lines 45-67); selecting a new motion class for each poorly classified region (Sethuraman: column 9, lines 1-20); reclassifying the poorly classified region to the new motion class (Sethuraman: column 14, lines 22-27); and re-estimating the poorly classified region based on a result of reclassifying the poorly classified region (Sethuraman: column 12, lines 1-5), as in claim 20.

Regarding claim 21, Sethuraman discloses wherein reclassifying includes: using a set of past and future data according to a hypothesis tracking algorithm (Sethuraman: column 14, lines 13-21).

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy S. Rao whose telephone number is (703)-305-4813. The examiner can normally be reached on Monday-Friday 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris S. Kelley can be reached on (703)-305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Andy S. Rao
Primary Examiner
Art Unit 2613

asr
August 11, 2004

ANDY RAO
PRIMARY EXAMINER

